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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/566,372 | 11/30/2006 | Jun Watanabe | 285297US0PCT | 2095 |
| 22850 7590 10/11/2007 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | EXAMINER ASINOVSKY, OLGA | |
| | | | ART UNIT 1796 | PAPER NUMBER |
| | | | NOTIFICATION DATE 10/11/2007 | DELIVERY MODE ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| | | | |
|------------------------------|--------------------------------------|----------------------------------------|--|
| Office Action Summary | Application No. 10/566,372 | Applicant(s) WATANABE ET AL. | |
| | Examiner Olga Asinovsky | Art Unit 1711 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 November 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>04/25/2006; 01/30/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 6-8 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 6-8 have not been further treated on the merits.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trepka et al U.S. Patent 6,265,484 in view of Dominguez U.S. Patent 4,049,595. Trepka discloses block copolymers of vinyl-substituted aromatic hydrocarbons and conjugated dienes suitable for use in blends with polymers of styrene, column 1, lines 60-67 and column 2, lines 1-12. The block copolymers are produced by using of a lithium initiator (for making the living polymer chains) in the presence of a randomizer, cyclohexane diluent and a coupling agent such as an epoxidized vegetable oil, column 15, lines 55-67; column 5, line 7 and column 20, lines 8-9. The block copolymers are produced by the unique sequence of an initial charge of monovinylaromatic monomer and initiator and a subsequent addition of a second charge of initiator and monovinylaromatic monomer, following by a separate charge of a mixture of

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monovinylaromatic monomer and conjugated diene, and a subsequent coupling step in a multiple phase polymerization condition, column 5, lines 13-55. The resulting block copolymer can have different microstructures including di-block copolymer, tri-block copolymer and polymodal structures, at column 13, Tables 5-6. The polymodal tapered block copolymers can have relatively high and low molecular weight species, column 6, lines 56-58. The amount of each monomer and initiator addition at each stage is controlled for obtaining the desired molecular weight of each block polymer, column 7, lines 32-36 and column 9, lines 38-60. Trepka discloses the claimed block copolymer having structures that are readable in the present claims. Trepka does disclose the issue how to control the molecular weight of each block polymer. It is reasonable to presume that the low molecular weight of polystyrene block can be obtained in Trepka invention.

Trepka does not disclose the specified molecular weight of polystyrene block=hard segment in the present claims, nor the ratio of S1/S2 and S3/S4 in the present claims.

Dominguez discloses block copolymer composition having the structure S-I-S and S-B-S block copolymers. The monoalkenyl arene polymer blocks preferably have average molecular weights between about 5,000 and about 125,000; and the weight percentage of the thermoplastic monoalkenyl arene blocks in the finished block polymer should be between about 8 and 65%, column 2, lines 30-45. The average molecular weight of the

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polystyrene segment and the content of said polystyrene segment are readable in the ranges in the present claims.

In light of the Trepka's disclosure of the strong advantages to be gained by using the controlled process condition by sequential charge of the controlled amount of each monomer and initiator addition at each stage (col. 7, lines 32-35 and col. 9, lines 38-41), it would have been obvious to one of ordinary skill in the art to utilize the process of making block copolymers in Trepka's invention such that the high and low numbers average molecular weight of the polystyrene segments and the ratio of the high number average molecular weight of polystyrene block to the low number average molecular weight of polystyrene block are obtained in Trepka's invention following by the teaching in Dominguez invention, and, thereby arrive at the claimed requirement.

4. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 07173232 (Patent family to EP 0 646 607) in view of Dominguez U.S. Patent 4,049,595. The Abstract of JP 07173232 discloses a multiple stages of producing a block copolymer comprising a polystyrene block by polymerizing a monovinylarene monomer (hard segment) and a soft block segment comprising a mixture of a monovinylarene monomer and a conjugated diene monomer, and a polystyrene block (hard segment), the process can be carried out in any order; and a coupling agent are sequentially added into contact under polymerization conditions.

EP 0 646 607 (hereinafter EP'607) belongs to the patent family to JP 07173232.

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EP'607 discloses an anionic living polymerization of styrene monomer and conjugated diene monomer such as butadiene in a multistage polymerization process. The polymerization is carried out in the presence of Lithium initiator and coupling agent such as epoxidized soybean oil, page 4, line 13. The process includes at least three sequential charges of styrene monomer and initiator, followed by a separate charge of a mixture of styrene and conjugated diene, page 4, lines 20-58. The structures of the block copolymers are readable in the present claims. EP'607 discloses that varying the weight ratios of amounts of each of the initiator charges made in each polymerization will result in variations of the proportionate amounts of species present in the copolymer, page 10, lines 32-39. The styrene content and a molecular weight of the polystyrene segment are controlled by the process condition in EP'607 invention.

EP'607 does not disclose the specified molecular weight of polystyrene block=hard segment in the present claims, nor the ratio of S1/S2 and S3/S4 in the present claims.

Dominguez invention has been considered in the paragraph 3 above.

It would have been obvious to one of ordinary skill in the art to utilize the process of making block copolymers in EP'607 invention such that the high and low numbers average molecular weight of the polystyrene segments and the ratio of the high number average molecular weight of polystyrene block to the low number average molecular weight of polystyrene block are obtained in EP'607 invention following by the teaching in Dominguez invention, and, thereby arrive at the claimed requirement.

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Conclusion

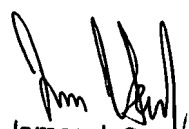
5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References have been considered. The closest reference JP07173232 belongs to Patent family to EP 0 646 607 has been considered above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga Asinovsky whose telephone number is 571-272-1066. The examiner can normally be reached on 9:00 to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

O.A


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